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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,029	09/28/2000	Ricardo I. Fuentes	11828/1	7682
26646	7590	09/16/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			CULBERT, ROBERTS P	
			ART UNIT	PAPER NUMBER
			1763	
DATE MAILED: 09/16/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/675,029

Applicant(s)

FUENTES, RICARDO I.

Examiner

Roberts Culbert

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 8/20/04 have been fully considered but they are not persuasive.

Applicant has argued, *"the combination of Britten and Moffat does not disclose, or even suggest, a fluid meniscus process that includes the step pf moving the object and the fluid meniscus relative to each other, wherein the object and the fluid meniscus are capable of motion relative to each other in two or more directions and of operatively contacting each other when moved relative to each other in two or more directions, as recited in claim 1."*

The argument is not persuasive because as shown in Figure 1, since the object (26) is not fixed to the apparatus (8) that holds the fluid meniscus, the object and meniscus are clearly capable of moving relative to each other in at least the six coordinate directions (x, y, z, -x, -y, -z) while operatively contacting the fluid meniscus. The word "operatively" as recited in the rejected claim may be broadly interpreted to mean simply producing an effect, exerting a force or influence, or quite simply having to do with a physical operation. There is nothing in the amended claim language that distinguishes over the type of contact shown in figure 1 of Britten.

Further, since no specific orientation is given for the object (26) in the invention of Britten, it is clear that the object could be oriented in any direction as long as a flat surface of the object to be etched is first moved over the etch fluid then the rinsing and drying fluids. For example, the object (26) could be rotated 180 degrees about a vertical axis before passing over the device of Britten. In this way, the object would have been moved in a different direction relative to the meniscus while performing the process exactly as shown in figure 1.

In addition, Britten clearly illustrates in Figure 2 that the meniscus and object are not only capable of, but do in fact move relative to each other in two or more directions.

Moreover, since no vertical distance is specified between the object and the top of the tank shown in figure 1 of Britten, the object is capable of moving vertically while being contacted by the meniscus within a range defined by the height of the meniscus above the tank.

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Applicant has further argued, "*Britten only describes that the substrate is moved relative to the fluid meniscus in a single direction...Britten does not even describe that the object and the fluid meniscus are capable of motion relative to each other in two or more directions and of operatively contacting each other when moved relative to each other in two or more directions.*"

The argument is not persuasive because Britten illustrates in Figure 1 that the substrate is not fixed to the substrate. Therefore the object and meniscus are inherently capable of moving relative to each other in more than one direction. Britten also clearly illustrates in Figure 2 that the meniscus and object are not only capable of, but do in fact move relative to each other in two or more directions.

Applicant has further argued, "*...the device of Britten will not operate if the substrate and the fluid meniscus are moved in any direction other than the direction shown by the arrow in Figure 1.*"

The argument is not persuasive because the claim only recites what the motion the substrate and fluid are capable of. Further, as stated above, Britten does not specify the specific orientation of the substrate and the invention would clearly operate as intended if the substrate were merely rotated before processing. Moreover, Figure 2 clearly shows motion of the meniscus relative to the substrate in two or more directions which reads on the invention of applicant as broadly claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,660,642 to Britten in view of U.S. Patent 5,171,393 to Moffat.

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Britten teaches a method for wet etching a substrate by contacting the substrate with the meniscus of a liquid etchant. Referring to Figure 1, Britten shows a processing applicator (10) containing a processing fluid (12). The processing fluid may be a liquid etchant. See Abstract and (Col. 2, Lines 41-50) and (Col. 4, Lines 32-34). The etchant meniscus is contacted with the substrate (26) (Col 3, Lines 18-25). The fluid meniscus is formed above the edges of the holding tank (15). See Figure 1. The holding tank has at least one channel to hold the fluid, and at least one overflow channel. See Figure 1. The liquid etchant is injected into the holding tank (15) via pump (28). The substrate is removed after contact with the fluid meniscus for rinsing and drying. The substrate may have a protective material layer such as a photoresist (Col. 4, Line 33). Britten teaches moving the substrate relative to the holding tank (Col. 2, Lines 21-25) as well as moving the tank relative to the substrate (Col. 3, Lines 23-26). Britten teaches drying by evaporation, but also shows a gas current such as forced air (dry compressed air) may be applied to the substrate (Col. 4, Line 25). The substrate surface and the fluid meniscus are inherently capable of motion relative to each other in two or more directions and operatively contacting each other when moved in two or more directions since the substrate is not fixed to the assembly (8) as shown in Figure 1. Moreover, Britten clearly illustrates in Figure 2 that the meniscus and object are not only capable of, but do in fact move relative to each other in two or more directions while operatively contacting each other.

Britten does not teach the use of a holding fixture for the substrate. However the use of a holding fixture for wet processing is well known in the etching art. Moffat teaches that a vacuum chuck is suitable for holding a substrate for subsequent wet processing steps (Col. 3, Lines 19-21). It would have been obvious to one of ordinary skill in the art at the time of invention to use a vacuum chuck to hold the substrate in order to facilitate wet processing as taught by Moffat. The vacuum chuck holder is interpreted by the examiner to be a "fluidic means" as broadly defined by applicant in claim 3.

Regarding claim 5, Britten shows that the solvent is re-circulated and replenished by use of a filter and pump. See Figure 1. Britten also teaches that it is known in the art to recycle and heat a solvent (Col. 1, lines 52-55). Heating is interpreted to be a form of agitation since claim 5 is not limited to the type

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of agitation (i.e. mechanical, thermal). It would have been obvious to one of ordinary skill in the art to heat the solution in order to improve the etch rate.

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,660,642 to Britten in view of U.S. Patent 5,171,393 to Moffat and U.S. Patent 5,279,703 to Habberger.

As applied above, Britten in view of Moffat discloses the method of invention substantially as claimed, but does not teach the use of electromagnetic radiation. Habberger teaches a process for etching a substrate in which electromagnetic radiation is used to heat a substrate and improve the etch rate (Col. 4, Lines 65-68). It would have been obvious to one of ordinary skill in the art at the time of invention to irradiate the substrate in the well-known manner in order to heat the substrate and improve the etch rate as indicated by Habberger (Col. 4, Lines 6-10). The location of the energy source is not given any patentable weight because one of ordinary skill in the art would recognize that the energy source could be secured anywhere that permits the energy source to focus on the substrate.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

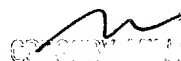
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert



GREGORY MILLS
SUPERVISOR
TELEPHONE: 571-272-1439
FAX: 703-872-9306